Effect Of Using Repurposed Science Rich Feature Films with Varying Levels of Student Activity in Middle Grades Science Instruction

Terence Cavanaugh Ph.D., University of South Florida  
cavanaugh@tempest.coedu.usf.edu  
http://typhoon.coedu.usf.edu/~tcavanau/

This study provided an initial investigation into the use of repurposed content-rich entertainment videos (versus traditional educational videos) presented in either an active or passive educational setting. Eight classes of seventh grade general science students (n=361) were randomly assigned to one of four video treatment groups: 1) repurposed content-rich entertainment video in a passive setting, 2) repurposed content-rich entertainment video in an active setting, 3) traditional educational video in a passive setting, and 4) traditional educational video in an active setting.

The subject matter of the videos focused on basic chemistry, scientific method, and the nature of life. The repurposed content-rich entertainment groups watched a StarTrek the Next Generation episode titled “Home Soil”, and the traditional educational video groups watched videos from NASA and the Understanding Science Corporation.

Students completed a knowledge-based pretest and an initial attitude survey prior to the treatment. During the treatment, all participants watched the videos, discussed the science content, and answered directed questions. Active setting groups discussed and answered questions during the video, while the passive setting groups discussed and answered questions after the video. The treatment period lasted approximately two class periods.

Immediately following treatment, participants received a knowledge-based posttest and an attitude survey. Three weeks after treatment, retention tests and follow-up surveys were administered. Test and survey data were analyzed using single factor and repeated measures ANOVA followed by post hoc tests.

Significant gains (p < 0.05) in test scores were found for repurposed content-rich entertainment video over traditional educational video groups. No significant differences were found in test scores between the active and passive setting groups. When the variables were combined, additional effects were noted. Specifically, significant differences were noted over time with the passive educational group performing lower than the passive repurposed group on mean test scores.

No significant differences were noted for attitude change toward science in comparing repurposed content-rich entertainment video group and traditional educational video group. A significant difference was found in how the subjects’ attitudes changed for the active (increasing then decreasing) versus the passive watching groups (decreasing then increasing), this effect may have been caused by the change, and then change back of the teaching styles.

The results of the study indicate that the use of content-rich entertainment video may provide an effective alternative for science education.
Effect Of Using Repurposed Science Rich Feature Films With Varying Levels Of Student Activity In Middle Grades Science Instruction

![Graph showing effects on test scores](image)

![Graph showing effects on attitude](image)

![Graph showing effect on attitude](image)

![Graph showing effect on attitude](image)